

Geometry Seminar
Tuesday, October 27, 2009
Room 202 WWH at 6:00 P.M.

Tropicalisation of rational varieties

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The tropicalisation $\text{trop}(V)$ of an affine or projective algebraic variety V is a polyhedral complex, together with intersection theoretic data, that encodes important information about V as its dimension, its degree, and its asymptotic directions. When V is a hypersurface, $\text{trop}(V)$ carries the same information as the Newton polytope of a defining equation for V .

The problem of describing $\text{trop}(V)$ for a rational variety in terms of a given rational parametrization has been recently studied by Sturmfels-Tevelev-Yu and Esterov-Khovanskii. Based on Kapranov's theorem, we present a naive approach to the problem using curve valuations, which allows us to slightly generalize their results. The advantage of this point of view is that even if we get complete results only when the polynomials defining the parametrization are generic with respect to their Newton polytopes, the proofs can be extended to deal with more general cases. This is joint work in progress with Bernard Mourrain.

For more information please visit the seminar website at:
http://www.math.nyu.edu/seminars/geometry_seminar.html.